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| 10/676,668 | 10/01/2003 | Sheng Li | 6741P003 | 8199 |
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| EXAMINER | | | | |
| JARRETT, SCOTT L | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/676,668

Applicant(s)

LI ET AL.

Examiner

SCOTT L. JARRETT

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-32 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. This Non-Final Office Action is in response to Applicant's submission filed October 1, 2003. Currently Claims 1-32 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 6 and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claims 6 and 24, Claims 6 and 24 recites the limitation "to ~~the~~ new demand data to produce" in Claim 4. There is insufficient antecedent basis for this limitation in the claim.

Examiner interpreted the claim to read "to new demand data to produce" for the purposes of examination. Appropriate correction required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1-5, 7-8, 10-23, 25-26 and 28-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Landvater, U.S. Patent No. 6,609,101.

Regarding Claims 1-3 Landvater teaches an apparatus comprising:

- a demand order module including a set of products to be shipped to a target location (Column 2, Lines 33-40; Column 8, Lines 4-25);
- a demand projection (forecast, estimation, prediction, etc.) module to determine demand for the set of products of a plurality of subdivisions (periods, windows, slots, periods, segments, days, weeks, etc.) of a time period based on a weighting factor and historical demand data (Column 4, Lines 53-68; Column 11, Lines 53-68; Column 13, Lines 5-29; Column 19, Lines 48-68; Column 20, Lines 1-20);
- a processing device to executing a demand projections module (Column 7, Lines 34-50; Figures 1-4); and
- a storage device with a data structure to store the demand projection module and actual demand data for the time period (Column 7, Lines 34-50; Figures 1-4, 8).

Regarding Claims 4 and 22 Landvater teaches a system and method comprising:

- forecasting a total demand for a time period (Column 4, Lines 1-34, 53-68; Column 8, Lines 63-68; Column 9, Lines 1-10);
- determining a weighting factor for a plurality of subdivisions of the time period (Column 11, Lines 53-68; Column 13, Lines 2—29; Column 19, Lines 37-68; Column 20, Lines 1-20); and
- projecting future demand, during the time period, for a subdivision based on the weighting factor and historical demand data (Column 11, Lines 53-68; Column 13, Lines 2—29; Column 19, Lines 37-68; Column 20, Lines 1-20).

Regarding Claims 5 and 23 Landvater teaches a system and method further comprising initializing the weighting factor to an equal value for each subdivision (Column 19, Lines 37-68; Column 20, Lines 1-20).

Regarding Claims 7 and 25 Landvater teaches a system and method further comprising multiplying total demand by the weighting factor and a ratio (percentage, fraction, etc.) of actual demand and forecast demand (Column 11, Lines 53-68; Column 12, Lines 41-68; Column 13, Lines 1-29; Column 19, Lines 40-68; Figure 12).

Regarding Claims 8, 17 and 26 Landvater teaches a system and method further comprising adjusting future demand forecast based on an out-of-stock (shortfall,

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shortage, stock out) calculation (e.g. safety stock to avoid a stock-out/shortage; Column 3, Lines 40-48; Column 14, Lines 23-58).

Regarding Claims 10, 19 and 28 Landvater teaches a system and method wherein the smoothing factor biases the weight factor in relation to historical demand (Column 4, Lines 53-68; Column 11, Lines 53-68; Column 12; Figure 11).

Regarding Claims 11 and 29 Landvater teaches a system and method further comprising selecting one or a forecast demand and a projected demand based on a threshold (target, benchmark, required, set, tolerances, etc.) value (Column 11, Lines 25-31; Column 18, Lines 3-14; Column 19, Lines 50-65; Column 20, Lines 17-20).

Regarding Claims 12 and 30 Landvater teaches a system and method wherein the threshold value is a ratio of cumulative sales data and cumulative forecast data for a subdivision of the time period (e.g. override percentages; Column 18, Lines 3-14; Column 19, Lines 50-65; Column 20, Lines 17-20).

Regarding Claims 13 and 31 Landvater teaches a system and method wherein the projected future demand is utilized when a minimum amount of historical data is received (Column 19, Lines 37-65).

Regarding Claims 14 and 32 Landvater teaches a system and method further comprising filtering historical demand data to remove statistical outliers (abnormal demands; Column 12, Lines 35-40).

Regarding Claim 16 Landvater teaches an apparatus comprising:

- means for calculating a weighting factor (Column 11, Lines 53-68; Column 13, Lines 5-29; Column 19, Lines 55-68; Column 20, Lines 1-15);
- means for calculating forecasted and projected demand (Figure 1);
- means for dynamically updating the project demand based on additional demand data (Column 19, Lines 20-68; Column 20, Lines 1-15).

Regarding Claim 18 Landvater teaches an apparatus further comprising means for adjusting the weighting factor based on additional demand data (Column 11, Lines 53-68; Column 13, Lines 5-29; Column 19, Lines 55-68; Column 20, Lines 1-15);

Regarding Claim 20 Landvater teaches an apparatus further comprising outputting the project demand to a transportation route determination module (Column 23, Lines 20-30).

Regarding Claim 21 Landvater teaches an apparatus further comprising means for receiving demand data (Figures 1-4).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Landvater, U.S. Patent No. 6,609,1 as applied to claims 1-5, 7-8, 10-23, 25-26 and 28-32 above.

Regarding Claims 6 and 24 Landvater teaches a system and method further comprising:

- applying a smoothing factor to new demand data to produce a first result (Column 4, Lines 53-68; Column 11, Lines 52-68; Column 12, Lines 35-68; Figure 11);
- aggregating a new demand data for the time period (Column 11, Lines 52-68; Column 12, Lines 35-68; Figure 11); and
- applying an smoothing factor to a previous weighting factor to generate a second result (Column 11, Lines 52-68; Column 12, Lines 35-68; Figure 11); and
- adding the first and second results (Column 11, Lines 52-68; Column 12, Lines 35-68; Figure 11).

While there are a plurality of commonly used and well known smoothing techniques (factors, weights, functions, algorithms, etc.) utilized in forecasting and

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statistical analysis Landvater does not expressly teach that the applied smoothing factor is an *inverted* smoothing factor as claimed.

Official notice is taken that inverting (flipping, inversion, etc.) one or more factors (weights, variables, parameters, etc.) is a common statistical and mathematical technique. Further official notice is taken that smoothing (using smoothing factors or other techniques) in statistical analysis and/or forecasting is old and very well known wherein the goal is to “smooth” a data set in order to create a function that attempts to capture important patterns in the data, while leaving out noise.

It would have been obvious to one skilled in the art at the time of the invention that the system and method as taught by Landvater with its utilization of well known smoothing techniques/algorithms would have utilized any of a plurality of well known smoothing approaches including but not limited to an inverted smoothing factor in view of the teachings of official notice; the resultant system/method capturing important patterns in the data, while leaving out noise.

Regarding Claims 9 and 27 Landvater teaches a system and method further comprising account for the effects of promotions on baseline (non-promotional periods, demand data (Column 2, Lines 10-27; Column 5, Lines 7-16, 38-48; Column 17, Lines 5-24; Figure 19).

Landvater does not expressly teach *separating* demand data between promotion and baseline demand as claimed.

Official notice is taken the separating (decomposing, de-trending, removing noise, splitting, etc.) demand data into its various components, one of which is the base/baseline demand data, is old and very well known (see for example Makridakis et al., Forecasting Methods and Applications, Section 3/1, Pages 84-87; Figure 3-1) wherein separating base demand from the aggregated/overall demand (e.g. promoted demand) is key to establishing a meaningful base forecast or more to the point segments (filters) out exogenous factors (e.g., price effects, promotions, etc.) from base demand history, and defines a better baseline forecast.

It would have been obvious to one skilled in the art at the time of the invention that the system and method as taught by Landvater with its ability to account for promotional, holiday and seasonal effects on demand would have benefited from separating demand data between promotion and baseline demand in view of the teachings of official notice; the resultant system and method enabling the forecaster to generate a more accurate baseline demand.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Shipman, U.S. Patent No. 5,819,232, teach a system and method for forecasting/project total demand for a time period wherein the forecasted demand is determined using historical demand data and a weighting factor determined for a plurality of subdivisions of time period.
- Brinkley et al., U.S. Patent No. 5,963,919, teach an inventory and replenishment management system and method comprising forecasting total demand for a time period based on historical demand, promotions and weighting factors.
- van der Heijden, Stock allocation in general multi-echelon distribution systems with (R,S) order-up-to-policies (1997) teach the well know utilization of Distribution Resource Planning systems and methods to forecast time-phased demand at the plurality of levels in a supply chain including accounting for out-of-stock (stockout probability) and transportation route planning.
- Baita et al., Dynamic Routing and Inventory Problems (DRAI): a Review (1998), teach the well known class of DRAI problem and systems comprising transportation/distribution routing & logistics, inventory replenishment management and demand forecasting.

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- Threatte et al., Tactical Shipping and Scheduling at Polaroid with Dual Lead-Time (2001), teach a system and method (decision support system) for production and transportation planning which recommends a production schedule, inventory levels, and specifies shipping options based on forecasted demand wherein the demand includes stock-out calculations.
- Martin, Distribution Resource Planning (1995), teaches a plurality of well known DRP techniques, approaches and systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT L. JARRETT whose telephone number is (571)272-7033. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Van Doren Beth can be reached on (571) 272-6737. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Scott L Jarrett/
Primary Examiner, Art Unit 3623